

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for detecting for the presence of antibiotic resistant *Staphylococcus* bacteria from total unamplified *Staphylococcus* genomic DNA in a sample, the sample comprising a wild-type *mecA* gene sequence or fragment thereof, one or more mutant *mecA* gene sequence or fragment thereof which differ from the wild-type *mecA* gene sequence by at least one nucleotide, or both, the method comprising the steps of:

- a) providing an addressable substrate having bound thereto (i) wild-type capture oligonucleotides having a sequence that is complementary to at least part of a first portion of the wild-type *mecA* gene sequence or fragment thereof, and (ii) one or more mutant capture oligonucleotides having a sequence that is complementary to at least part of a first portion of the mutant *mecA* gene sequence or fragment thereof;
- b) providing a detection probe comprising detector oligonucleotides bound to a gold nanoparticle, wherein the detector oligonucleotides have a sequence that is complementary to at least part of a second portion of the *mecA* gene sequence or fragment thereof of step (a);
- c) contacting the sample with the substrate and the detection probe under conditions that are effective for (i) the hybridization of the capture oligonucleotides to the first portion of the *mecA* gene sequence or fragment thereof, (ii) the hybridization of the detection probe to the second portion of the *mecA* gene sequence or fragment thereof, and (iii) the discrimination between the wild-type *mecA* gene sequence or fragment thereof and said one or more mutant *mecA* gene sequence or fragment thereof that differ by at least one nucleotide; and
- d) detecting whether the capture oligonucleotide and detection probe

hybridized with the first and second portions of the *mecA* gene sequence or fragment thereof.

2. (Previously Presented) The method of claim 1, wherein the *mecA* gene sequence or fragment thereof comprises a Single Nucleotide Polymorphism.

3. (Original) The method of claim 1, wherein the single nucleotide difference is recognized by the capture oligonucleotide bound to the substrate.

4. (Original) The method of claim 1, wherein the single nucleotide difference is recognized by the detector oligonucleotides.

5. (Cancelled).

6. (Original) The method of claim 1, wherein the substrate comprises a plurality of capture oligonucleotides, each of which can recognize a different single nucleotide polymorphism.

7. (Previously Presented) The method of claim 1, wherein the sample comprises more than one *mecA* gene sequence or fragment thereof, each of which comprises one or more different single nucleotide polymorphisms.

8. (Previously Presented) The method of claim 1, wherein one or more types of detector probes are provided, each of which has detector oligonucleotides bound thereto that are capable of hybridizing to the *mecA* gene sequence or fragment thereof.

9. (Withdrawn) The method of claim 1, wherein sample is contacted with the detector probe so that a nucleic acid target present in the sample hybridizes with the detector oligonucleotides on the detector probe, and the nucleic acid target bound to the detector probe is then contacted with the substrate so that the nucleic acid target hybridizes with the capture oligonucleotide on the substrate.

10. (Previously Presented) The method of claim 1, wherein sample is contacted with the substrate so that the *mecA* gene sequence or fragment thereof present in the sample hybridizes with the capture oligonucleotide, and the *mecA* gene sequence or fragment thereof bound to the capture oligonucleotide is then contacted with the detector probe so that the *mecA* gene sequence or fragment thereof hybridizes with the detector oligonucleotides on the detector probe.

11. (Withdrawn) The method of claim 1, wherein the sample is contacted simultaneously with the detector probe and the substrate.

12. (Cancelled).

13. (Previously Presented) The method of claim 1, wherein the detection probe allows detection by photonic, electronic, acoustic, opto-acoustic, gravity, electrochemical, electro-optic, mass-spectrometric, enzymatic, chemical, biochemical, or physical means.

14.-26. (Cancelled).

27. (Previously Presented) The method of claim 1, wherein the detecting comprises contacting the substrate with silver stain.

28. (Previously Presented) The method of claim 1, wherein the detecting comprises detecting light scattered by the nanoparticle.

29. (Previously Presented) The method of claim 1, wherein the detecting comprises observation with an optical scanner.

30. (Previously Presented) The method of claim 1, wherein the detecting comprises observation with a flatbed scanner.

31. (Original) The method of claim 29 or 30, wherein the scanner is linked to a computer loaded with software capable of calculating grayscale measurements, and the grayscale measurements are calculated to provide a quantitative measure of the amount of nucleic acid detected.

32. (Previously Presented) The method of claim 1, wherein the oligonucleotides attached to the substrate are located between two electrodes, the nanoparticles are made of a material that is a conductor of electricity, and step (d) comprises detecting a change in conductivity.

33. (Original) The method of claim 32, wherein the electrodes are made of gold and the nanoparticles are made of gold.

34. (Original) The method of claim 32, wherein the substrate is contacted with silver stain to produce the change in conductivity.

35. (Previously Presented) The method of claim 1, wherein a plurality of capture oligonucleotides, each of which can recognize a different *mecA* gene sequence or fragment thereof are attached to the substrate in an array of spots and each spot of oligonucleotides is located between two electrodes, the nanoparticles are made of a material that is a conductor of electricity, and step (d) comprises detecting a change in conductivity.

36. (Original) The method of claim 35, wherein the electrodes are made of gold and the nanoparticles are made of gold.

37. (Original) The method of claim 35, wherein the substrate is contacted with silver stain to produce the change in conductivity.

38.-167. (Cancelled).

168. (Previously Presented) The method of claim 1, wherein the substrate further comprises one or more capture oligonucleotides having sequences that are complementary to Tuf gene, 16S rRNA gene, or both, or to fragments thereof.

169. (Previously Presented) The method of claim 168, wherein the method is used to distinguish between two or more species of a common genus.

170. (Previously Presented) The method of claim 169, wherein the species differ by two or more nonconsecutive nucleotides.

171. (Previously Presented) The method of claim 169, wherein the species differ by two or more consecutive nucleotides.

172. (Previously Presented) The method of claim 169, wherein the species differ by at least one nucleotide.